Biochar

In a new initiative that will divert more waste from landfilling, Larimer County's Solid Waste Division is now accepting clean streams of woody debris (e.g., tree limbs and untreated scrap lumber) at a special area of the landfill, to be ground up and sent to Biochar Now, a start-up company in Berthoud, Colorado that has been manufacturing biochar since 2012.

What is it?

Biochar is a charcoal-like material derived from the carbonization of biomass such as manure, wood or leaves. Biochar is produced by pyrolysis - heated over a wide range of temperatures in an oxygen-deprived environment – which breaks down the biomass into simpler substances. It is then used as a soil amendment.

What is its connection to the past?

Originally called Terra Preta, biochar was first created in the Amazon River basin around 7,000 years ago by piling up biomass and smoldering it with very limited amounts of oxygen. While most people believe the Amazon River basin has fertile soil, it is actually among the least fertile on earth. Studies have found that areas in which biochar was used as a soil amendment are significantly more fertile than areas where it was not used.

What are some benefits of biochar?

- Off-gasses from biomass pyrolysis can be captured to produce energy. The energy produced has the potential to be an energy source as a substitute for burning fossil fuels.
- Biochar can enhance soil productivity. According to a study performed in the Amazon basin using local soils, when applied to crops, biochar retained nutrients and water (as much as an 880% increase in yield using a combination of charcoal and mineral fertilizers instead of mineral fertilizers alone).
- Biochar has the potential to be a climate-change mitigation strategy. Studies have found that biochar sequesters carbon and "locks" it in the soil for a long time.

How is this important to our local area?

Biochar Now reports that the Berthoud company's custom-designed system allows them to focus on making and selling quality biochar on a large scale using patent-pending, slow-pyrolysis kilns. In addition to wood-waste collected at Larimer County landfill, disease-killed pines, ash trees and other types of woody materials are shredded and loaded into the kilns as feedstock. The company's unique multi-zone combustion, airflow, negative pressure and recipe-driven control system allows each kiln to independently produce consistent, high quality biochar. When the conversion process is finished, raw biochar pieces are sorted at a crushing and screening workstation in four sizes – Chip, Medium, Small and Powder. Each size has its own uses. Applications include direct placement into soil as well as suspension in water sprays.

Producing biochar is an exciting new development in the way wood-waste can be put to beneficial use. As leaders in this young and growing industry, Biochar Now continues to research, refine and improve their processes. For more information, visit their website here.